The Place of Worksheets in Learning

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Definition and rationale

Worksheets are designed to provide supplementary work to students. In a classroom, a worksheet is, by and large, used to provide some information or give more work (practice) in addition to what is taught or learnt from the textbooks and, at times, even to assess students' work. Worksheets are used in all subjects, all age groups of students, and for all levels of learners.

> Depending on the way it is designed, a worksheet could serve either as a teaching tool or a learning tool. Many a time, the kind of exposure one wishes to provide students with – be it as a piece of information or as a creative activity – is not available in a textbook. A teacher then turns to other sources or resources available outside of these textbooks and converts them into worksheet(s). At times, teachers simply duplicate or reproduce content given in other textbooks to create a worksheet. Therefore, a teacher's imagination and creativity play a significant role in making the worksheets interesting and motivating or, conversely, mechanical.

Context, abilities, children's levels of learning and the class level dictate the way a worksheet is to be designed. I feel even within a standard classroom, where children are of the same age group, one cannot have the same set of worksheets for all: by now it is a well-established fact that children's learning levels vary even within a standard class setting. Worksheets can be given either as classwork or homework and are generally for individual work/activity.

Purpose

As a teacher, it is important to ask oneself the purpose behind giving any additional work to one's students in the form of worksheets. Is it about giving 'more work' of the same kind, to provide rigour, keep students occupied or assess them? Is it about helping them stretch their imagination? Worksheets can become boring if children are bombarded with more of the same; although rigour is required from time to time, the decision regarding the purpose calls for the teacher's discretion.

As a teacher, especially of young children, I created worksheets based on some basic principles, keeping the age group and abilities of students in mind, to do the following:

- Reinforce the concept learnt
- Explore concepts/topics in different ways
- Motivate students to learn
- Make students independent learners

Refer to Figure 1 for the framework that I used for creating worksheets.

Assumption

Students have already been introduced to the topic/concept through the use of concrete aids. They have been provided with sufficient time and space before transferring their understanding onto paper (in this case, worksheets).

For instance, consider a child who is not yet able to read. How can he/she work independently? Therefore, given the mixed ability of children in any grade, it is necessary for a teacher to be prepared with the appropriate material – textbooks, resource books, workbooks, worksheets, concrete aids, and other manipulatives. This will, to a large extent, reduce the burden on the teacher and make the learning less teacher-centric. The teacher may want to introduce a topic to the whole class, to bring all the students on to the same level, or to do the groundwork. It could be teacher-driven at this point. The students could then move on to working on the problems given in the textbook, workbook, or exercise books, as mandated. This could vary, depending on a teacher's style and comfort.

When do worksheets come in?

Worksheets come in handy for those students who finish working faster than the others on all of the above. Rather than have these students work on 'more-of-the-same' kind, the teacher can have a set of four or five worksheets on the concept that are created or designed differently for these students.

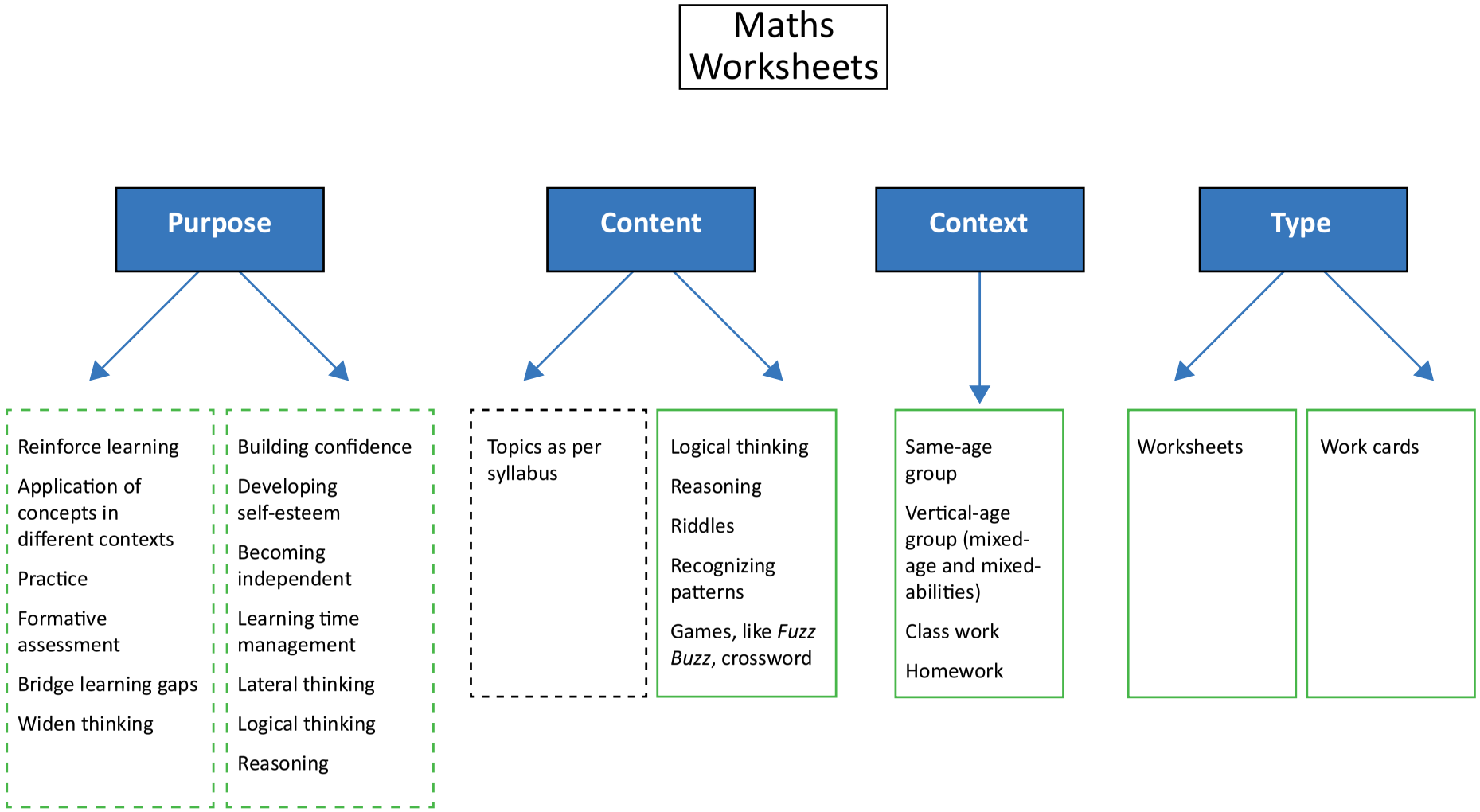

Figure 1. My framework for creating worksheets.

The more proficient and confident students may complete the mandated class-level work and also the set of related worksheets, students who are at the class level may only be able to complete one or two worksheets, and the ones who are grappling with their work, may or may not be able to attempt the worksheets at all. However, the teacher can, at least, ensure that the work given in the books is complete, as that may be the mandate for many teachers/schools.

Introducing worksheets could be done after the class-level work that is required or expected of all the students is completed. This is to ensure that moving on to worksheets is not because some are better than the others, but as something that has been earned as a reward for completing the work. It is, therefore, critical to design the worksheets differently, make them interesting and motivating for students. A worksheet does not need to serve as a benchmark for others, as it is not compulsory. It is only an invitation to explore, enjoy, and feel motivated to earn the worksheets and progress towards them. This approach may work for many schools/teachers as the majority, are bound by the syllabus and textbooks.

Worksheets for different levels of learners in a class

1. For advanced students
- Solving of regular sums in a different context
- Reinforcement of previous concepts along with the new ones learnt
- Verbal reasoning
- Logical thinking and reasoning
- Games – *Fuzz Buzz, Bingo*, matching, dartboard, crossword

  Some examples are shown in Figures 2 and 3.

2. For class-level learners
- Solving of regular sums, but in different contexts
- Reinforcement of previous concepts along with new ones learnt
- Lateral thinking (like addends: __+ 8 = 10 (OR) 7 +__= 10 instead of 8+2 =?

  (OR) __ +__ = 561. Such small flips can be engaging and also help recognise the patterns)
- Moving on to working on work cards in addition to all of the above.

3. Some students may take more time than required or may grapple with class-level work for various reasons. (Teachers would know their students better and they are the best judge of students' abilities). Some of the reasons could be:

- Inability to work within a time frame: Students can be asked to keep track of the time that they take to finish their work. The teacher should ideally have a conversation with a student who takes longer to complete work to ascertain the reasons for needing more time.
- Diffidence: A student is perhaps able to do simple two-digit addition and is not yet able to do the carry-over sums. The teacher can create worksheets that have more of the sums which the student can solve and slip in a couple of sums that involve carry-over. The likelihood of the student getting a majority of the sums correct would be high and only those that he or she was not sure of may go wrong or the student may get them right by chance too! The point is, seeing most of the work correct and only a few wrong, will boost the student's esteem and build his/her confidence to move on.
- Dependency: Ensure that the instructions are short and simple and that the student can read these on his/her own. Use visuals wherever required to support the words/instructions (no harm done). Remember, the priority is to leave the student with a sense of achievement.

Role of teacher

The teacher can have a set of four or five worksheets for every topic/concept. It is up to her/him to take a call on putting a halt or winding up the topic and moving on to the next. As John Hull says, 'Does work end when the brightest have completed the whole worksheet, or when the slowest have completed the initial stages?' It is a difficult call to take, and once again the teacher is the best judge.

One of the techniques that I have used is, having a work card over and above the worksheet. Work cards are not mandatory, even for fast learners and those who are better-equipped, as they come with some conditions – they must be explored on their own, learners can work in consultation with a peer if required. Teacher support is remote and is available only after a student has tried all other avenues, for example, the 3- before- me strategy. Work cards would have a set of games and other such activities that could be taken up after the worksheets, or at any point in time, even during

Sindhu	6	5	1	8	9	10	4	11	3
Tanvi	38	27	3	66					

Find Tanvi's Secret Rule

other subject lessons once students complete the classwork. Called *Any Time is Math Time*, these can be used as fillers too, for example, the two-person game, 'Find Tanvi's Secret Rule'.

Having such games (of pattern recognition), either on the bulletin board or as work cards, will help children think and look for patterns and stretch their imagination. Here if Sindhu says 6, Tanvi is saying 38; if it is 5 Tanvi says 27, and so on. Children must find the basis for Tanvi's responses. How is she arriving at those numbers? What is the pattern involved?

Do note that such topics or concepts should have been introduced to children at some point in class without which children may feel clueless. For example, children must have had opportunities to play around with numbers and recognise patterns.

Having all the materials ready and being organised helps a teacher to handle different abilities of children, address learner levels and help students move at their own pace. It fits into Bloom's Taxonomy, when some may remain at the knowledge and understanding level, while some may progress to evaluating and creating. Producing worksheets that suit students' requirements not only helps them proceed at their own pace, it also does not hold anyone back. It teaches students to accept, tolerate and cooperate with each other.

Challenges faced by teachers

Teachers may face issues such as:

- Will students feel that they are at a different level as compared to their peers?
- Students may ask why some of their peers are allowed to do other worksheets and not them.
- Parents may want to know why their child's homework is different from another child's.
- A child may not want to proceed with work cards or do work beyond the textbooks.

Such issues call for well-planned, well-thought-out responses, based on the rationale the teacher has in mind. It is crucial to remain balanced and impartial towards students. It rests solely on the teacher's ability and sensibility to not compare children and to ensure that no child ends up feeling superior or inferior to others.

Students in any class will be at different stages and levels for the time the lesson/topic is running. My estimate is that each topic would require a minimum of seven to ten days depending on the age group. The lower the age group, the more the time required for every topic/theme. As teachers, we often move on to teaching the next topic or concept, rather than allowing students to explore the one being taught from various angles to widen the horizons of their thinking. Using worksheets can provide plenty of such opportunities.

How does one go about gathering or collecting such worksheets? Since teachers would know the textbook/topics/syllabus to be covered, they could be on the lookout for books and other resources, start collecting them, and put them to use as and when required, rather than searching for them just before teaching the topic or while teaching it. Worksheets or materials thus collected can become a repository of one's own over a period of time – provided they are saved/filed.

A few tips to ensure that students become independent learners

- Instructions should be short and crisp, for example, instead of saying, 'Find the sum of the following,' just say, 'Add'.
- Graphic organisers[i] help students organise their thoughts, for example, KWL,[ii] flow charts, mind maps, web charts, content maps.
- Use visuals, if required, to help students decipher the instructions on their own. Children who struggle with reading and writing can be encouraged by substituting visuals/pictures to represent difficult words.
- Provide support by showing what is to be done, for example, 'circle the same word as in the margin'.
- Break down the content into manageable parts. The article *Creating a Supportive Learning Environment*, (Learning Curve, April 2020) has strategies that will help all the children, including the ones who are lagging

- Homework could go with a small note to the parents requesting them to help their child to revise and practise concepts taught in class within a specified period every day. (Such short notes from the teacher add a personal touch and can benefit both the student and the parents.)
- Students need not know the formulas always. They can try to solve the sums through the trial-and-error method. Remember, these are not for grading as much as for investigating, exploring and motivating.
- Above all, constructive and specific feedback from the teacher will inspire the students to learn and grow.

None of the strategies suggested is easy to implement. Each one of them calls for a lot of teacher preparation, planning and, above all, command over the subject (content knowledge), to think on different levels of a concept. The teacher should be able to cope with all the questions and should constantly move between groups of children working at different levels. All of this calls for an alert and active mind. I am sure that the outcome will definitely be rewarding to the teacher. When parents see their wards motivated and interested in learning at school, they will start cooperating. I was lucky to have such parents and one of them even gifted me with the book, *Games for Math, Playful Ways to Help Your Child Learn Math from Kindergarten to Third Grade*, by Peggy Kaye. The schools that I worked in had rich libraries. I used to note the ideas and tweak them to suit the needs of the learners in my class. In the end, I would like you to remember that if it was possible for me, it is possible for you too.

Phone Number Fun!

Can you help Chintu find the correct phone numbers?

Sneha: 976031022 Ramesh Uncle: 873639303 Mummy: 9845116543 Raju Groceries: 9139959377 Nanima: 220317609 School: 5111211152 Neighbour Aunty: 690713202 Cycle repair: 8342689103	1. Whose phone number contains only odd numbers? ____ 2. Whose phone number adds up to 30? ____ 3. Whose phone number adds up to less than 20? ____ 4. Whose phone number contains the same number four times? ____ 5. Which three phone numbers contain all the same numbers? ____

Figure 2. Phone number game

Fun with Codes!

Here are five words: BEND, DEBT, BENT, TEND, DENT

The same words are hidden in the codes below but in a different order. Find the right word for each code word.

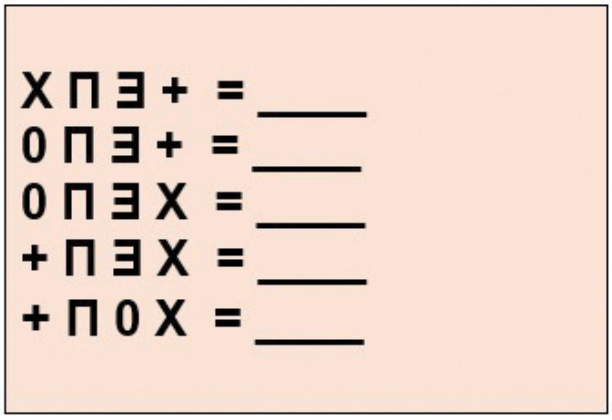

Figure 3. Cracking the code game

Endnotes

i Graphic organisers are visual representations to help organize thoughts, ideas, show relationships etc. They can be a learning tool as well as a pedagogical tool.

ii KWL: Know/Want to Know/Learned. KWL strategy encourages students to think about what they already know about something, what they want to know and what they finally learn. It helps students organise their learning throughout the process of learning.

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